

USSR

UDC 669.3+669.27].018.95

IVANOVA, V. S., FRIDMAN, Z. B., and GVOZDYK, V. G.

"Investigation by Means of High-Temperature Metallography of the Failure Macromechanism of Copper Reinforced With Tungsten Wire"

V sb. Novyye napravleniya razvitiya vysokotemperaturn. metallogr. (New Trends in Development of High-Temperature Metallography -- Collection of Works), Moscow, "Mashinostroyeniye" (Machine-Building), 1971, pp 144-147 (from RZh-Metallurgiya, No 1, Jan 72, Abstract No 11738 by authors)

Translation of Abstract: The authors present results of an investigation, by means of high-temperature metallography, of the macromechanism of breaking strain of copper reinforced by a net and unidirectional fibers of tungsten. Reinforcement of Cu with a net is more effective than reinforcement with unidirectional fibers from the standpoint of high-temperature strain resistance. Two illustrations. Bibliography with four titles.

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USSR

UDC 669.539.43

IVANOVA, V. S., and GUREVICH, S. YE., (editors)

Fatigue of Metals and Alloys (Ustalost' metallov i splavov), Collection of Articles, Moscow, "Nauka" Press, 1971, 123 p., illustrations, graphs, tables and bibliographic references.

This is a collection of some of the papers presented at the Fifth Conference on Metal Fatigue. The papers deal with problems related to the theory and mechanism of fatigue, kinetics of failure, as well as various aspects of cyclic strength (including composite materials) and hardening procedures. The proceedings of the First Conference on Metal Fatigue (22-24 Sept. 1958) were published in the 1960 collection "Metal Fatigue"; those of the Second Conference (24-27 May 1960) -- in the 1962 collection "Cyclic Strength of Metals"; the Third Conference (5-9 March 1962) -- in the 1963 collection "Metal Strength Under Variable Loads"; the Fourth Conference (14-17 March 1966) -- in the 1967 collection "Metal Strength Under Cyclic Loads." The first three collections were published by the Academy of Sciences USSR Press and were edited by I. A. Odintsov (Corresponding Member of the Academy), while the fourth collection was published by "Nauka" Press and edited by V. S. Ivanova (Professor and Doctor of Technical Sciences). This edition is intended for researchers, laboratory technicians and design bureau personnel at metallurgical, tool manufacturing, and machine-building plants, instructors and students of higher technical educational institutions.

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IVANOVA, V. S., GUREVICH, S. YE., Fatigue of Metals and Alloys, Collection of Articles, Moscow, "Nauka" Press, 1971, 123 p.

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IVANOVA, V. S., and GUREVICH, S. YE., Fatigue of Metals and Alloys, Collection of Articles, Moscow, "Nauka" Press, 1971, 123 p.

- IV. Kudryavtsev, N. M. Savvina, B. B. chechulin and A. I. Yamshchikova. Effect of the Size Factor and Heavy-Force Fit on the Cyclic Strength of Nonhardened and Roll-Hardened Specimens of Titanium Alloyed With Aluminum 81
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USSR

UDC 539.4.011

IVANOVA, V. S., and BOTVINA, L. R., Moscow

"Common Regularity in the Change of Mechanical Properties of Metals and Alloys under Different Load Conditions"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 3, May-Jun 71, pp 43-53

Abstract: The critical condition of metals and alloys by transition from one stress type to another is investigated, taking into account the destruction stages of reversible, irreversible, and catastrophic damages, corresponding to the development of submicroscopic continuity disturbance, micro-cracks, or cracks of critical length, respectively. A clearly defined dependence in the transition zone was established of all mechanical properties on load conditions and other factors, conditional to the abrupt drop of the energy capacity of the metal by transition from the plane-stressed to the plane-deformed condition. Under plane-deformation conditions, the fracture toughness on the top of cracks is minimum and proportional to the latent heat of fusion, according to  $(G_{1c})_{\min} = L_m \Delta_{1c}$ , where  $\Delta_{1c}$  = linear dimension of the stable nucleus of the crack under micro-separation conditions. The  $(G_{1c})_{\min}$  value can be determined from corrosion tests under stress condition by the value of the limiting

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IVANOVA, V. S., and BOTVINA, L. R., Fizika i Khimiya Obrabotki Materialov, No 3, May-Jun 71, pp 43-53

stress intensity coefficient  $(K_{Ic})_{min}$ . The established regularity in the change of mechanical properties, depending on external actions, serves as basis for predicting the mechanical properties of materials under different load conditions. Twelve figures, one table, 23 bibliographic references.

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172 , 035

UNCLASSIFIED

PROCESSING DATE--11SEP70

TITLE--EFFECT OF THE EARLIER FLOW OF THE SURFACE LAYER ON THE  
STRENGTHENING AND BREAKDOWN OF METALS AND ALLOYS -U-  
AUTHOR--IVANOVA, V.S., TERENTYEV, V.F.

COUNTRY OF INFO--USSR

SOURCE--FIZ. KHIM. OBRAB. MATER. 1970, (1) 79-89

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--METAL AGING, GRAIN SIZE, FATIGUE STRENGTH, STRAIN HARDENING,  
METAL HEAT TREATMENT, PLASTIC FLOW, METAL BRITTLENESS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1938/0634

STEP NO--03/0472/70/000/001/0070/0039

CIPC ACCESSION NO--AP0105613

UNCLASSIFIED



2/2 035

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0105613

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PUBLISHED EXPTL. DATA ARE ANALYZED TO DEDUCE THE PROBABLE BASIS FOR THE EFFECT OF THE SPECIFIC BEHAVIOR OF THE SURFACE LAYER ON THE PROCESSES OF THE MACROSCOPIC FLOW OF METALS WHICH POSSESS A CLEARLY EXPRESSED PHYS. YIELD POINT. THE JOG PLATEAU SHAPE OF THE YIELD CURVE, THE PORTEVIN LE CHATELIER EFFECT, THE PHYS. FATIGUE LIMIT, AND THE SHARP TRANSITION TO COLD BRITTLENESS MAY BE EXPLAINED BY THE ANOMALOUS BEHAVIOR OF THE STRONGER SURFACE LAYER DURING DEFORMATION. SUCH STRENGTHENED SURFACE LAYERS, WITH THICKNESS OF THE ORDER OF THE GRAIN SIZE, CAN BE PRODUCED BY DYNAMIC STRAIN AGING AS A RESULT OF LOADING IN THE PSEUDO ELASTIC REGION OR BY PRELIMINARY MECH., CHEM., AND HEAT TREATMENT.

UNCLASSIFIED

1/2 020 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--STRENGTH DIAGRAMS OF FIBROUS COMPOSITION MATERIALS WITH A  
UNIDIRECTIONAL STRUCTURE -U-  
AUTHOR-(02)-IVANOVA, V.S., USTINOV, L.M.  
COUNTRY OF INFO--USSR  
SOURCE--IZVEST. AKAD. NAUK SSSR, METALLY, MAR.-APR. 1970, (2), 176-180  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS  
TOPIC TAGS--MECHANICAL STRENGTH, FIBER COMPOSITE, REINFORCED MATERIAL,  
NONFERROUS METAL  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3007/1277 STEP NO--UR/0370/70/000/002/0176/0180  
CIRC ACCESSION NO--AP0136683  
UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0136683

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE THEORY OF THE STRENGTH  
DIAGRAMS OF COMPOSITION MATERIALS (FIBRE REINFORCED METALS) WITH A  
UNIDIRECTIONAL STRUCTURE IS PRESENTED. FOUR POSSIBLE TYPES OF GRAPH  
RELATING THE STRENGTH OF THE MATERIAL AS A WHOLE TO THE PROPORTION OF  
FIBROUS REINFORCING PHASE ARE DERIVED. THE CONDITIONS REQUIRED FOR THE  
REINFORCEMENT OF A SOFT METAL WITH FIBRES OR WIRES OF VARIOUS DIA. TO BE  
EFFECTIVE ARE CONSIDERED.

UNCLASSIFIED

Acc. Nr.: AT0046708

Ref. Code: Z18C146

USSR

UDC 62-251

IVANOVA, V.V., DROZDOVICH, V.N.

"Stabilization of Rotors on Gas Lubricated Bearings for Small Radial Loads"

O stabilizatsii rotorov na podshipnikakh s gazovoy smazkoy pri malykh radial'nykh nagruzkakh (cf. English above), Leningrad, Izvestiya Vysshikh Uchebnykh Zavedeniy, Priborostroyeniye, 1970, No 1, pp 103-107

Translation:

A technique is presented for the approximate analysis of the stability of a lightly loaded balanced rotor with elastic restraint of the bushings of the radial sliding bearings.

Reel/Frame

19790011

87 11

1/2 027 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--AT THE SCIENCE FRONTIER -U-

AUTHOR--~~IVANOVA, YE.~~

COUNTRY OF INFO--USSR

SOURCE--MEDITSINSKAYA GAZETA, AUGUST 14, 1970, P 3, COLS 5-7

DATE PUBLISHED--14AUG70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--VIRUS DISEASE, MALARIA, BIOLOGIC RESEARCH FACILITY,  
EPIDEMIOLOGY, MEDICAL PERSONNEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FAME--2000/1876

STEP NC--UR/9034/70/000/000/0003/0003

CIRC ACCESSION NO--AN0125484

UNCLASSIFIED

2/2 027

UNCLASSIFIED

PROCESSING DATE--3000170

CIRC ACCESSION NO--AN0125484

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE MISSION OF THE AZERBAIDZHAN SCIENTIFIC RESEARCH INSTITUTE OF VIROLOGY, MICROBIOLOGY, AND HYGIENE IMENI MUSABEKOV IS TO CONDUCT AND ORGANIZE RESEARCH IN EPIDEMIOLOGY, MALARIA, AND OTHER SERIOUS DISEASES. VIRAL DISEASES ARE SAID TO BE THE FOCAL POINT OF RESEARCH. THE FOLLOWING ASSOCIATES OF THE INSTITUTE ARE MENTIONED: (1) I. SEIDOV, CANDIDATE OF MEDICAL SCIENCES, (2) N. GUNCHAROVA, LABORATORY ASSISTANT, (3) K. KERIMZADE, DOCTOR OF MEDICAL SCIENCES, HEAD OF A DEPARTMENT, (4) S. BAGIROVA, CANDIDATE OF MEDICAL SCIENCES, (5) T. ASADULLAYEV, CANDIDATE OF MEDICAL SCIENCES, HEAD OF THE LABORATORY OF VIRAL BIOCHEMISTRY, (6) L. ALEKPEROVA, CANDIDATE OF MEDICAL SCIENCES, (7) A. SHEKHTMAN, LABORATORY HEAD. THE INSTITUTE OFFERS GRADUATE PROGRAMS FOR DOCTORAL AND CANDIDATES DEGREES.

UNCLASSIFIED

ENGINEERING

USSR

Aeronautical and Space

UDC 539.4:629.7.02

IVANOVA, YE. A., KOMAROV, V. A.

"Rational Design of the Fixed Portion of a Variable Sweepback Wing"

Tr. Kuybyshev. aviats. in-t (Works of Kuybyshev Aviation Institute), 1971, No. 54, pp 24-35 (from RZh-Mekhanika, No 3, Mar 72, Abstract No 3V1140)

Translation: Establishing the most favorable plan form and thicknesses of panels of the wing center section in the zone of the fastening of the hinge and also the selection of rational directions of the system of reinforcing elements of the wing with the aid of computer solutions by the finite element method is discussed. It was established that despite the large range of angles of rotation of the major vector of the moment going to the hinge of the wing center section from the cantilever (of the order of  $45-60^\circ$  in various computational cases), the orientation of the reinforcing elements has a range of only  $10-15^\circ$ . Rationally, therefore, the region directly adjacent to the hinge should be constructed as an isotropic panel and the reinforcement should be outside the Shukhov region, gradually balancing the directions of the strengthening elements up to their ordinary position along the caisson. A study of the optimal position of the walls of the caisson was limited only by general considerations concerning the number and placement of the walls. Sample diagrams are given of rational trajectories of the walls along the caisson, beginning at the hinge. 11 ref. S. Ya. Makarov. 1/1

USSR

UDC 632.954:541.144.7+551.116

IVANOVA, YE. A., Southern Scientific Research Institute of Hydraulic Engineering and Reclamation

"Effect of Stan F-34 on Photosynthesis and Transpiration Rate of Rice Grown without Flooding"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 8, No 3, Mar 70, pp 45-49

Abstract: The author studied the effect of Stan F-34 in doses of 1.5, 3.0 and 4.5 kg/ha a. i. on the transpiration and photosynthesis rate of leaves of Belyy SK043 rice grown without flooding. It was found that the transpiration and photosynthesis processes of the plants are inhibited by the preparation, but that they are normalized 8-10 days after treatment. A 1.5 kg/ha a. i. dose of the herbicide promotes intensified photosynthesis during the midday hours when it is hottest.

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1/2 007 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--EFFECT OF THE PREPARATION STAM F-34 ON THE INTENSITY OF THE  
PHOTOSYNTHESIS AND TRANSPIRATION OF RICE CULTIVATED WITHOUT FLOODING -U-  
AUTHOR--IVANOVA, YE.A.

COUNTRY OF INFO--USSR

SOURCE--KHIM. SEL. KHOZ. 1970, 8(3), 208-9

DATE PUBLISHED-----70

SUBJECT AREAS--AGRICULTURE, BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CEREAL CROP, CROP IRRIGATION, PLANT PHYSIOLOGY, PHOTOSYNTHESIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3008/0019

STEP NO--UR/0394/70/003/003/0208/0209

CIRC ACCESSION NO--AP0137218

UNCLASSIFIED

2/2 007

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0137218

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STAM F-34, SPRAYED AT 1.5, 3.0, AND 4.5 KG OF ACTIVE INGREDIENT-HA ON RICE PLANTS GROWING WITHOUT FLOODING AND IN THE 4-5 LEAF STAGE, SUPPRESSED BOTH TRANSPIRATION AND PHOTOSYNTHESIS. THE STRONGEST SUPPRESSION WAS GIVEN BY THE HIGHER RATES; 1.5 KG-HA STIMULATED PHOTOSYNTHESIS DURING MIDDAY. THE SUPPRESSING EFFECTS DISAPPEARED AND THE INTENSITY OF THE BOTH PROCESSES WAS AGAIN COMPARABLE TO CONTROLS 11 DAYS AFTER APPLICATION.

FACILITY: YUZHNYI NAUCH.-ISSLED. INST. GIDROTEKH., MELIORATS., USSR.

UNCLASSIFIED

1/2 011 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--EFFECT OF THE PREPARATION, STAM F-34, ON INTENSITY OF  
PHOTOSYNTHESIS AND WATER TRANSPIRATION OF RICE RAISED WITHOUT FLOODING  
AUTHOR--IVANOVA, YE.A.

COUNTRY OF INFO--USSR

SOURCE--KHIMIYA V SEL'SKOM KHO YAYSTVE, 1970, NR 3, PP 48-49

DATE PUBLISHED-----70

SUBJECT AREAS--AGRICULTURE, BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--HERBICIDE, CEREAL CROP, PLANT PHYSIOLOGY, PHOTOSYNTHESIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3007/1651

STEP NO--UR/0394/70/008/001/0048/0049

CIRC ACCESSION NO--AP0136912

UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0136912

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF THE HERBICIDE, STAM F-34, ON THE INTENSITY OF WATER TRANSPIRATION AND PHOTOSYNTHESIS IN LEAVES OF RICE, WHITE SKOMS VARIETY, RAISED WITHOUT FLOODING WAS STUDIED. THE YOUNG FOUR OR FIVE LEAF SEEDLINGS WERE SPRAYED WITH DOSES OF 1.5, 3.0, OR 4.5 KG-HA OF THE HERBICIDE. THE INTENSITY OF PHOTOSYNTHESIS WAS DETERMINED USING THE METHOD OF BOROULINA. TRANSPIRATION WAS DETERMINED BY WEIGHT. SUPPRESSION OF TRANSPIRATION WAS NOTED ON THE THIRD DAY AFTER SPRAYING, ESPECIALLY IN THE MIDDAY HOURS. LARGER DOSES CAUSED STRONGER SUPPRESSION. THE SAME SUPPRESSING EFFECT WAS OBSERVED FOR PHOTOSYNTHESIS, EXCEPT IN THE CASE OF THE 1.5 KG-HA DOSE INTENSIFIED PHOTOSYNTHESIS. TRANSPIRATION WAS RESTORED IN EIGHT TO TEN DAYS AFTER SPRAYING, WHILE RESTORATION OF PHOTOSYNTHESIS TOOK PLACE ON THE ELEVENTH DAY. FACILITY: YUZHNY NAUCHNO-ISSLEDOVATEL'SKIY INSTITUT GIDROTEKHNIKI I MELIORATSII.

UNCLASSIFIED

1/2 023 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--DRAWING OF STRIP THROUGH A DRAW PLATE WITH A SIGMOIDAL FORM -U-

AUTHOR--(02)-RENNE, I.P., IVANOVA, YE.A.

COUNTRY OF INFO--USSR

SOURCE--IZVEST. V.U.Z, TSVEINAYA MET., 1970, (1), 136-140

DATE PUBLISHED-----70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, MATERIALS

TOPIC TAGS--METAL STRIP, ALUMINUM ALLOY, COPPER ALLOY, CARBON STE,  
BIBLIOGRAPHY, METAL BRITTLENESS, DIE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0542

STEP NO--UR/0149/70/000/001/0136/0140

CIRC ACCESSION NO--AP0124237

UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0124237

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE QUESTION AS TO THE OPTIMUM PROFILE OF DRAW PLATE FOR THE DRAWING OF METAL STRIP IS DISCUSSED AND THE ADVANTAGES OF SIGMOIDAL PLATES RATHER THAN THOSE WITH WEDGE OR RADIAL PROFILES ARE CONSIDERED ON THE BASIS OF PRACTICAL DATA OBTAINED FOR AL AND CU ALLOYS AND C STEEL. THE NEW PLATE GIVES A MORE UNIFORM DISTRIBUTION OF DEFORMATION THROUGHOUT THE THICKNESS OF THE STRIP AND THUS IMPARTS A GENERAL IMPROVEMENT TO THE QUALITY OF THE PRODUCT. THIS IS PARTICULARLY MARKED IN THE CASE OF BRITTLE METALS.

UNCLASSIFIED

USSR

UDC: 621.315.592

IVANOVA, Ye. I., BOVOGRUDSKIY, B. V., PARITSKIY, L. G., Physicotechnical  
Institute imeni A. F. Ioffe, Academy of Sciences of the USSR, Leningrad

"A Semiconductor Photographic System Based on High-Resistance Gallium  
Arsenide"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 6, No 9, Sep 72, pp 1831-  
-1834

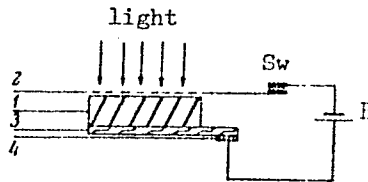
Abstract: A semiconductor photographic system based on high-resistance gallium arsenide without a protective coating on the semiconductor is proposed which combines the advantages of the photoconductographic and semiconductor-electrolyte photographic systems. The photographic process is diagrammed in the figure. The image is exposed on photoconductor (1) on the same side as semitransparent nickel electrode (2). A current-conducting cellophane film (3) impregnated with electrolyte is pressed tightly against the photo-receiver from the other side. The area of the film is greater than that of the photoconductor, and the excess area is in contact with a copper or graphite counter-electrode (4). During exposure the minus side of battery B is connected to the semitransparent nickel electrode, and the plus side

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IVANOVA, Ye. I. et al., Fizika i Tekhnika Poluprovodnikov, Vol 6, No 9, Sep 72, pp 1831-1834

is connected to the counter-electrode. The counter-electrode (anode) is located to the side of the frame area at such a distance that the products of anode reaction formed in the thin film around the counter-electrode can not diffuse into the frame area and fog the image. The electrical and optical characteristics of the proposed system are discussed.



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1/2 010 UNCLASSIFIED  
TITLE--URANYL SELENOCYANATES -U-

PROCESSING DATE--30OCT70

AUTHOR--(02)-SKOPENKO, V.V., IVANOVA, YE.I.

COUNTRY OF INFO--USSR

SOURCE--UKR. KHIM. ZH. 1970, 36(1), 16-19

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--SELENIUM COMPOUND, URANIUM COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1996/1995

STEP NO--UR/0073/70/036/001/0016/0019

CIRC ACCESSION NO--AP0118954

UNCLASSIFIED

2/2 010

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0118954

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FOLLOWING COMPLEXES HAVE BEEN ISOLATED FROM MEQH OR ME SUB2 CO SOLN.: UO SUB2 L SUB2 (NCSE) SUB2, L EQUALS DIANTIPYRYLMETHANE 2,2',BIPYRIDINE, AND 1,10,PHENANTHROLINE; UO SUB2 A SUB3 (NCSE) SUB2, A EQUALS ME SUB2 SO, ANTIPYRINE, AND PYRAMIDONE. IN EACH SERIES ASYM. VIBRATION OF THE UO SUB2 PRIME2 POSITIVE ION INCREASED IN THE ORDER GIVEN. FACILITY: KIEV. GOS. UNIV. IM. SHEVCHENKO, KIEV, USSR.

UNCLASSIFIED

USSR

UDC: 546.791.6:547.491.5

SKOPENKO, V.V., and IVANOVA, YE.I., Kiev State University ineni T. G. Shevchenko, Kiev, Ministry of Higher and Secondary Specialized Education Ukrainian SSR

"Some Uranyl Selenocyanates"

Kiev, Ukrainskiy Khimicheskii Zhurnal, Vol 36, No 1, Jan 70, pp 16-19

Abstract: The authors synthesized novel salts  $UO_2L_2(NCSe)_2$  and  $UO_2A_3(NCSe)_2$ , where L= 2,2'-dipyridyl, 1,10-phenanthroline, diantipyrimethane, and A= antipyrine, pyrimidone, dimethylsulfoxide. The compounds were obtained by mixing methanol or acetone solutions of uranilselenocyanates and respective complexing agents in a ratio of 1:2 and 1:3. The complexes were found to bind with uranium through the oxygen atom, as evidenced by the IR spectral data. The IR frequency for the bond  $\nu_{as}(UO_2^{2+})$  increases in the order: diantipyrimethane < dipyridyl < phenanthroline, and dimethylsulfoxide, antipyrine < pyrimidone; the authors claim that the bond strength of uranium-organic ligand behaves analogously.

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USSR

UDC: 531.787

ATANOV, Yu. A., IVANOVA, Ye. M.

"Study of Manganin Resistance Manometers at High Pressures"

Tr. VNIi Fiz.-Tekhn. i Radiotekhn. Izmereniy [Works of All Union Scientific Research Institute for Physical-Technical and Electronic Measurements], No 5 (35), 1971, pp 52-69 (translated from Referativnyy Zhurnal Metrologiya i Izmeritel'naya Tekhnika, No 2, 1972, Abstract No 2.32.686)

Translation: Results are presented from studies of the metrological characteristics of a large group of identical manganin resistance manometers. An interpolation equation is produced, correct for any manometer of the group in the pressure interval up to 15,000 kg/cm<sup>2</sup> with an error on the order of  $\pm 0.5\%$ . It is demonstrated that one-time pressing of coils with a pressure on the order of 28,000 kg/cm<sup>2</sup> reduces the spread of pressure resistance coefficients by a factor of 2. A number of manometers are cross checked at a pressure on the order of 28,000 kg/cm<sup>2</sup>. 4 figures; 4 tables; 3 biblio refs.

1/1

USSR

UDC 632.95.024:635.13

IVANOVA, Ye. P., Kazakhsky Scientific Studies Institute of Potato and Vegetable Farming, NEKRASOVA, A. S., BAKANOV, Sh. A., and MAYOROVA, R. I., Kazakh Scientific Research Institute of Regional Pathology

"The Effectiveness of Prometrin Against Weeds on Carrot Seedlings and the Occurrence of Its Residues in the Crop and in the Plant"

Moscow, Khimiya v Sel'skom Khozyystve, No 7, Vol 11, 1973, pp 61-63

Abstract: Prometrin -- 2-methylthio-4,6-bis(isopropylamino)sym-triazine -- is one of the herbicides suggested for use on carrots in the Alma-Atinsky region. Under the conditions in this area, prometrin was singularly effective against annual monocotyledon and dicotyledon weeds. The amount of control for 3 years -- 1969 through 1971 -- is shown together with the meteorological conditions. Values for several indicators of plant productivity and vitality are shown for a control group and groups treated with 1.5 kg/hectare or 2.0 kg/hectare for 1969 and 1970. In doses of 1.5 kg/hectare it reduces the choking by 97.0% and the overall mass of weeds by 96.8%. No adverse effects on the seedlings or residue in the crop were observed for this dose. Residues were observed when higher doses (2.5 to 3.5 kg/hectare) were used.

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UDC 632.954:635.342

USSR

MANANKOV, M. Ye., and IVANOVA, Ye. P., Scientific Research Institute of Potato and Horticulture

"The Use of Herbicides in Growing Cabbage by the Non-Seedling Method"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 11, No 8 (118), 1973, pp 55-56

Abstract: Under conditions of irrigational soil cultivation in the south-eastern Kazakhstan region, planting the cabbage by the non-seedling method, the application of semeron in doses of 0.07-1.0 kg/hectare proved to be effective. 65-94.7% of the weeds were destroyed. The cabbage crop increased by 72.3 hundred weights per hectare without a decrease in quality. Sodium trichloroacetate appeared to be useful only in spring applications on fields heavily infested with monocotyledonous weeds.

1/1

USSR

UDC 539.184

IVANOV, L. N., IVANOVA, Ye. P., and SAFRONOVA, U. I.

"Third-Order Feynman Diagrams for Degenerate States of Atomic Systems"

Leningrad, Optika i Spektroskopiya, vol. 31, No. 4, 1971, pp 489-495

Abstract: Third-order terms of the expanded energy expression in the theory of perturbations with simple ratios, for the configuration states of  $1s2s$ ,  $1s2p$ ,  $1s^22s$ ,  $1s^22p$  are computed in this article. Also computed are the coefficients of  $Z^{-1}$  in the Hartree-Fock expansion for the configurations of  $1s^22s$  and  $1s^22p$ . Comparison of the results of these computations with others in the literature indicate the importance of the correlation corrections taken into account by the simple-ratio terms. The degenerate states in the zero order of the perturbations theory are examined without the need for solving the secular equation in order to compute the energy shift. Results of the computations are given in the form of a table listing the third-order energy corrections for the various states.

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1/2 008 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--USE OF AMMONIA TO NEUTRALIZE WASH WATERS -U-

AUTHOR--(C3)-IVANOVA, YE.S., SHCHERBININA, S.D., KAPLINA, N.YA.

COUNTRY OF INFO--USSR

SOURCE--ENERGETIK 1970, (1), 10-11

DATE PUBLISHED-----70

SUBJECT AREAS--AGRICULTURE, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--INDUSTRIAL WATER, INDUSTRIAL WASTE TREATMENT, AMMONIA,  
SULFATE, FERTILIZER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--2000/1696

STEP NO--UR/0091/70/000/001/0010/0011

CIRC ACCESSION NO--AP0125317

UNCLASSIFIED



2/2 008

UNCLASSIFIED

PROCESSING DATE--300CT70

CIRC ACCESSION NO--AP0125317

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. WASH WATERS CONTG. SO SUB4 PRIME2  
NEGATIVE 14.75, FE 5.50, V 0.35, NI 0.065, CU 0.025 G-L., AND  
0.38PERCENT H SUB2 SO SUB4 WERE NEUTRALIZED WITH EXCESS NH SUB3 5.6-6.0  
KG-M PRIME3 (116PERCENT OF THEORETICAL) AND YIELDED SULFATE FREE PPTS.  
ENRICHED IN V AND NI. THE WATER CONTG. SIMILAR TO 2PERCENT (NH  
SUB4)SUB2 SO SUB4 IS USEFUL IS USEFUL AS A FERTILIZER AND THE GYPSUM  
FREE PPT. CCNTG. FE SUB2 O SUB3 69.5, V SUB2 O SUB5 7.5, NI AND CU  
OXIDES 2.0 AND ORG. RESIDUES 19.4PERCENT CAN BE REUSED IN METALLURGY.  
THE NH SUB3 PPTN. REMOVES ALL THE INORG. AND ORG. (FUEL OIL OR  
UNCOMBUSTED COKE) MATERIALS COMPLETELY EXCEPT FOR NI AND CU. THE  
2-3PERCENT OF NI AND CU REMAINING IN SOLN. CAN BE REMOVED BY CATION  
EXCHANGE ON A NH SUB3 WASHED SULFONATED COAL.

UNCLASSIFIED

USSR

UDC 621.3.049.75

DANILINA, T. I., IVANOVA, Ye. V., Tomsk Institute of Radio Electronics and Electronic Technology

"A Device for Atomizing Dielectric Films"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obrazitsy, tovarnyye znaki, No 11, Apr 71, Author's Certificate No 299044, division H, filed 17 May 69, published 16 Mar 71, p 194

Translation: This Author's Certificate introduces a device for atomizing dielectric films which contains a gas-discharge chamber equipped with an anode, cold cathodes, a magnetic system and a substrate holder. As a distinguishing feature of the patent, the quality of the vaporized films is improved by making the anode in the form of a  $\Pi$ , while the substrate holder is made from a dielectric and is located under the anode outside of the gas-discharge region.

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- 67 -

USSR

IVANOVA, YE. YE., Moscow

"Study of the Motion of Spacecraft by the Methods of Similarity Theory"

Moscow, Prikladnaya matematika i mekhanika, No. 5, Sep/Oct 71, pp 930-932

Abstract: A transformation to a dimensionless form of differential equations by introducing similarity coefficients for the basic parameters of the motion is suggested to generalize the numerical results of studying the motion of spacecraft in a central gravitational field. With the aid of similarity coefficients the solution of the problem is easily recalculated for any geometrical dimensions of the orbit and characteristics of the gravitational field for a fixed value of the eccentricity. The similarity coefficients are valid for considering both the relative and absolute motion of spacecraft. The relative motion of an active spacecraft and an interceptor as it approaches a passive object and a target is described by a system of nonlinear differential equations with variable coefficients. Since it is impossible to investigate this system analytically in the general case, numerical methods are used and the solution is a function of the shape of the orbit of the target (the eccentricity  $e$ , its linear dimensions -- the focal parameter  $p$ ), the gravitational field

1/2

1/2 023 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--USE OF SOLID ELECTRODES DURING THE POTENTIOMETRIC TITRATION OF  
CHLORIDES BY A MERCURIMETRIC METHOD -U-  
AUTHOR--(03)--KIMSTACH, V.A., KOVALENKO, P.N., IVANOVA, Z.I.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. ANAL. KHIM. 1970, 25(3), 588-90  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--CHLORIDE, METAL ELECTRODE, TANTALUM, TIN, LEAD, SILVER,  
TUNGSTEN, MOLYBDENUM, NICKEL, POTENTIOMETRIC TITRATION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3001/0469 STEP NO--UR/0075/70/025/003/0588/0590  
CIRC ACCESSION NO--AP0126221  
UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0126221

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE USE OF AG, W, MO, CU, C. CD, NI, FE, PB, TA, AND SN ELECTRODES DURING THE POTENTIOMETRIC TITRN. OF CHLORIDES WITH HG(NO SUB3? SUB2 WAS STUDIED. THE W ELECTRODES GIVE THE LARGEST POTENTIAL JUMP AT THE EQUIVALENCE POINT. TITRN. IS ALSO POSSIBLE WITH AG, TA, AND C ELECTRODES. BIMETALLIC ELECTRODE PAIRS SUCH AS W-C, AG-TA, AG-C, C-TA, W-TA CAN ALSO BE USED FOR TITRN. THE MOST SUITABLE IS THE W-C PAIR. FACILITY: ROSTOV-ON-DON STATE UNIV., ROSTOV-CN-DCN, USSR.

UNCLASSIFIED

172 008 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--ATTACHMENT TO A POTENTIOMETER FOR SIMULTANEOUS TITRATION WITH  
SEVERAL INDICATOR ELECTRODES -U-  
AUTHOR-(03)-DIGNISYEV, V.D., CHEBOTAREV, V.K., IVANOVA, Z.I.

COUNTRY OF INFO--USSR

SOURCE--ZAVOD. LAB. 1970, 36(3), 280-1

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ELECTRODE POTENTIAL, POTENTIOMETRIC TITRATION, CHEMICAL  
LABORATORY APPARATUS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/1960

STEP NO--UR/0032/70/036/003/0280/0281

CIRC ACCESSION NO--AP0132221

UNCLASSIFIED

2/2 OC8

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0132221

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DEVICE DESCRIBED IN DETAIL IS ESSENTIALLY A MULTIPOLE DOUBLE THROW SWITCH WHICH ALLOWS THE DETN. OF THE POTENTIAL OF ALL THE INDICATOR ELECTRODES AT EACH POINT OF THE TITRN.; TO DET. THE SUITABILITY OF ANY ONE ELECTRODE IN THE COURSE OF ONE TITRN. AND TO DET. THE JUMP IN POTENTIAL AND THE CORRESPONDING EQUIVALENCE POINT. FACILITY: ROSTOV. GOS. UNIV., ROSTOV, USSR.

UNCLASSIFIED

USSR

UDC 613.63:615.285.42+615.285.7

BURKATSKAYA, N. Ye., MATYUSHINA, V. I., and IVANOVA, Z. V., Kiev Institute of Industrial Hygiene and Occupational Diseases

"Hygienic Evaluation of the New Insecticide and Acaricide Dicresyl Ester of N-Methylcarbamic Acid"

Moscow, Gigiyena i Sanitariya, No 8, 1973, pp 99-101

Abstract: Dicresyl is used to protect cattle against certain insects and ixodid ticks. The LD<sub>50</sub> for rats and mice is 471 and 271 mg/kg, respectively. It is readily absorbed through the skin and exerts a systemic toxic effect. The symptoms of poisoning after injection into the stomach or application to the skin in toxic and lethal doses include salivation and tearing, head and body tremors, fibrillar twitching of muscles, and clonic-tonic spasms similar to those induced by poisoning with organophosphorus compounds and, like the latter, it markedly inhibits cholinesterase activity. Dicresyl is also toxic when inhaled. Despite the similarity of its chemical structure to that of urethan, it did not have a tumorigenic effect when administered to a high-cancer mouse strain (A). Dicresyl was found to penetrate the protective clothing (cotton robes and rubber gloves) of workers handling it (the

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USSR

BURKATSKAYA, N. Ye., et al., Gigiyena i Sanitariya, No 8, 1973, pp 99-101

cholinesterase level was 24 to 43% below normal the first day of use although it did not provoke subjective complaints). The recommended maximum permissible concentration in the air of work places is 0.5 mg/m<sup>3</sup>.

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USSR

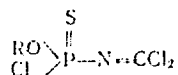
UDC 547.26

IVANOVA, ZH. M., GUSAR', N. I., MIROSHICHENKO, V. V., SAMARAY, L. I.,  
Institute of Organic Chemistry, Academy of Sciences of the Ukrainian SSR

"A Method of Making Triphosphoric Acid Isocyanide Dichlorides"

Moscow, Otrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye  
Znaki, No 15, Apr 73, Author's Certificate No 374321, Division C, filed 25  
Jun 71, published 20 Mar 73, p 52

Translation: This Author's Certificate introduces: 1. A method of making  
triphosphoric acid isocyanide dichlorides of the general formula



where R is an alkyl. As a distinguishing feature of the patent, an alkyl  
dichlorophosphite is reacted with N-chlorosulphenyl isocyanide dichloride with  
subsequent isolation of the goal product by conventional methods. 2. A  
modification of this metod distinguished by the fact that the alkyl dichloro-  
phosphite and N-chlorosulphenyl isocyanide dichloride are taken in a molar  
ratio of 2:1. 3. A modification of this method distinguished by the fact  
that the process is done at 40-50°C.

1/1

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USSR

UDC 546.183.2

IVANOVA, ZH. M., GUSAR', N. I., MIROSHNICHENKO, V. V., and GOLOLOBOV, Yu. G.,  
Institute of Organic Chemistry, Academy of Sciences, UkrSSR

"Reaction of Dialkylaminosulphenyl Chlorides With Alkyl Difluorophosphites"

Leningrad, Zhurnal Obshchey Khimii, Vol 42 (104), No 9, Sep 72, p 2115

Abstract: Diethylaminosulphenyl chloride reacts with two equivalents of ethyl difluorophosphite yielding ethyl difluorothiophosphate, b.p. 78-79°,  $d_4^{20}$  1.2293,  $n_D^{20}$  1.3755, and diethyl amidodifluorophosphate b. p. 44-45°/12 mm,  $d_4^{20}$  1.1470,  $n_D^{20}$  1.3730. The starting ethyl difluorophosphite was obtained by fluorination of ethyl dichlorophosphite with antimonytrifluoride, b.p. 23-24°,  $d_4^{15}$  1.0922,  $n_D^{15}$  1.3280.

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USSR

UDC 517.1:615.7/9

MARCHUK, R. YA., BIRMAN, G. N., ZAIKA, A. P., KONDRATYUK, V. I. and IVANOVA, ZH. N.

"Detoxification and Anticholinesterase Action of Two Representatives of Acid Fluorides of Alkyl Esters of Alkylthiophosphonic Acid"

Fiziol. aktivn. veshchestva. Resp. mekhved. sb. (Physiologically Active Substances, Republic Interdepartmental Collection), 1971, vyp 3, pp 75-79 (from RZh-Biologicheskaya Khimiya, No 17, Sep 71, Abstract No 1772100)

Translation: In experiments on rabbits it is shown that there is no direct relationship between toxicity, anticholinesterase activity and detoxification in the tissues for isopropyl and ethyl ethers of nethyllfluorothio-phosphonic acid.

1/1

USSR

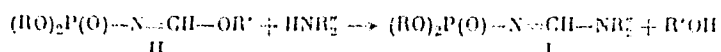
UDC 546.185

GUSAR<sup>1</sup>, N. I., IVANOVA, Zh. M., KUKHAR<sup>1</sup>, V. P., and KIRSANOV, A. V.,  
Institute of Organic Chemistry, Academy of Sciences Ukrainian SSR

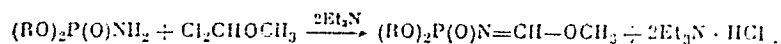
"N,N-Dialkyl-N'-Dialkoxyphosphonylformamidines"

Leningrad, Zhurnal Obshchey Khimii, Sep 71, Vol 41, No 9, pp 2107-2108

**Abstract:** N,N-Dialkyl-N'-dialkoxyphosphonylformamidines are readily obtained by treating N-dialkoxyphosphonyliminoformic acid esters with secondary amines at 0-5°C without a solvent



N-dialkoxyphosphonyliminoformic acid methyl ester (II,  $R' = CH_3$ ) was obtained in low yield from the 1,1-dichloromethyl ester and dialkylamidophosphate, in the presence of triethylamine in benzene



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USSR

UDC 547.26.118

IVANOVA, ZH. M., STUKALG, YE. A., TISHCHISHINA, N. S., DERKACH, G. I. (DECEASED), Institute of Organic Chemistry, Kiev, Academy of Sciences Ukrainian SSR

"Isocyanates of Cyclic Ethers and Etheramides of Phosphorus Acids"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 9, Sep 70, pp 1942-1948

Abstract: In continuation of previous work, 2-chloro-4-methylphosphorinane, N-methyl- and N-phenyl-2-chloro-1,3,2-oxazaphospholanes were reacted with sodium cyanate to yield 2-isocyanato-4-methylphosphorinane and N-methyl- and N-phenyl-2-isocyanato-1,3,2-oxazaphospholanes. These products are soluble in most organic solvents except petroleum ether; they react slowly with water and easily add a sulfur atom when heated with phosphorus thiochloroxide. 2-Isocyanato-2-oxophospholane and 2-isocyanato-2-oxo-4-methylphosphorinane react violently with water and easily add alcohols, oximes, enamines, and hetero cyclic methylene bases at the isocyanate group. Their thioanalogues react much slower with water and other nucleophilic compounds.

1/1

USSR

UDC 547.26'113

IVANOVA, ZH. M., MIRNAYLIK, S. K., and BERRACH, the late, G. I., Institute of Organic Chemistry, Academy of Sciences Ukrainian SSR

"Mono- and Diisocyanates of Alkylthiophosphonic Acids"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 7, Jul 70, pp 1473-1476

Abstract: Heating of diisocyanates of alkylphosphonous acids with thiophosphoryl chloride gives diisocyanates of alkylthiophosphonic acids. Fluorination of the latter with antimony trifluoride gives equal quantities of isocyanatoalkylthiophosphonic acid fluoride and alkylthiophosphonic acid difluoride. The diisocyanates of alkylphosphonic and alkylthiophosphonic acids and the acid fluorides of isocyanatoalkylphosphonic and isocyanatoalkylthiophosphonic acids give adducts with 1-piperidyl-1-phenylethylene.

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USSR

UDC 547.241 + 547.74/75

NGUYET FYUNG, IVANOVA, Zh. M., DERKACH, G. I. (deceased), and BABICHEV, F. S.

"Reactions of Indolicine and Pyrrolo[1,2-a]-benzimidazole With Isocyanates and Isothiocyanates of Phosphorus Acids"

Leningrad, Zhurnal Obshchey Khimii, Vol 41 (103), No 2, Feb 71, pp 319-322

Abstract: 2-Methylindolicine and pyrrolo[1,2-a] benzimidazole react with isocyanates and isothiocyanates of phosphorus acids to yield N-phosphorylated amides (or thioamides) of 2-methylindolicine-3-carboxylic acid and the pyrrolo[1,2-a]benzimidazole-1-(or -3-)-carboxylic acid respectively. The products are crystalline, unstable to heat, so they cannot be purified by recrystallization. A petroleum ether solution of freshly distilled isocyanate of a phosphorus acid is added dropwise to pure 2-methylindolicine with stirring at room temperature. The product crystallizes at the end of reaction; separated, washed with petroleum ether and dried under vacuum.

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1/2 019 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--ALKYLTHIOPHOSPHONIC ACID FLUORIDE CHLORIDES -U-

AUTHOR--(03)-IVANOVA, ZH.M., MIKHAYLIK, S.K., DERKACH, G.I.

COUNTRY OF INFO--USSR

SOURCE--ZH. OBSHCH. KHIM. 1970, 40(3), 702

DATE PUBLISHED--70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL SYNTHESIS, PHOSPHONIC ACID, FLUORINATED ORGANIC  
COMPOUND, CHLORINATED ORGANIC COMPOUND, PHOSPHORUS SULFIDE, ORGANIC  
PHOSPHORUS COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--2000/0887

STEP NO--UR/0079/70/040/003/0702/0702

CIRC ACCESSION NO--AP0124550

UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124550

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HEATING 0.4 MOLE MEP(O)FCL AND 0.1  
MOLE P SUB2 S SUB5 4 HR AT 150-60DEGREES GAVE 38PERCENT MEP(S)FCL, B.  
109-11DEGREES, D PRIME20 1.3890, N PRIME20 SUBD 1.4755. SIMILARLY WAS  
PREPD. 40PERCENT ISO,PRP(S)FCL, B SUB8 41-3DEGREES, 1.2641, 1.4770.  
FACILITY: INST. ORG. KHIM., USSR.

UNCLASSIFIED

USSR

UDC 541.49:546.79

YELESIN, A. A., ZAITSEV, A. A., IVANOVICH, N. A., KARASEVA, V. A., and  
YAKOVLEV, G. N.

"Complex Formation of Trivalent Americium, Curium, and Promethium Ions with  
Hydroxymethylphosphonic Acid and Hydroxymethylethylphosphinic Acid"

Leningrad, Radiokhimiya, Vol 14, No 4, 1972, pp 546-551

Abstract: Dissociation constants of hydroxymethylphosphonic acid [HMPA] and hydroxymethylethylphosphinic acid [HMEPA] were determined at 25°C; it was found that in their strength these acids are close to phosphonic acid. Using the ion exchange method on a cation exchange resin, the complex formation of  $\text{Am}^{3+}$ ,  $\text{Cu}^{3+}$  and  $\text{Pm}^{3+}$  with HMPA and HMEPA was studied. HMPA forms two complexes:  $[\text{M}(\text{HA})]^{2+}$  and  $[\text{M}(\text{HA})_2]^+$ , while HMEPA is capable of only one complex formation of the  $[\text{MA}]^{2+}$  type. It was shown that no additional binding between the metal ions and hydroxy groups of these acids takes place.

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USSR

UDC 681.142.37:61

ANTONOVA, N. G., IVANOVSKAYA, G. A., NADENENKO, V. K., SEL'DIMIROVA, Ye. M. and  
CHERNYAVSKIY, V. S. Fourth Clinical Hospital

"Processing Medical Information With the "Minsk-22M" Computer and "Blank-P"  
Automatic Counting System"

Minsk, Zdravookhraneniye Belorussii, No 6, 1970, pp 62-66

Abstract: Machine storage of medical information and the use of a ready retrieval system were discussed. In addition, a form No 266-M, divided into 60 zones and 490 cells, capable of deciphering 999 pertinent medical problems was added. After detailed presentation of the workings of the "Minsk-22M" computer in conjunction with these blanks, it was concluded that: Machine processing of medical information with the aid of formal documents improves the quality of book-keeping, insures veracity of the data, improves accountability by compiling additional summaries and indicators, and standardizes the discrepancies in diagnoses and therapeutic processes for all medical personnel. In addition, computer processing improves the organization of the initial documentation, perfects the organization of work for accounting personnel and other institutional personnel by freeing them from search and grouping operations, substantially increases the productivity of statisticians, and increases the quality and efficiency of management of a medical establishment.  
1/1

USSR

UDC 661.718.1' + 547.77

ARBUZOV, B. A., VIZEL', A. O., IVANOVSKAYA, K. M., and GOL'DFARB, E. I.,  
Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy  
of Sciences USSR

"Reaction of 2-Oxo-2-chloro-3,3,5-trimethyl-1,2-oxaphospholene-4 With  
Ethylene Glycol"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 10, Oct 73, pp 2134-2137

Abstract: The reaction of 2-oxo-2-chloro-3,3,5-trimethyl-1,2-oxaphospholene-4 with ethylene glycol was studied under various conditions: with or without solvent, different ratios of the reagents, with or without triethylamine. In all cases only one acyclic product was obtained: 2-oxo-2-(1,1-dimethyl-3-oxobutyl)-1,3,2-dioxaphospholane, b.p. 140-141°/0.01 mm,  $n_D^{20}$  1.4727,  $d_4^{20}$  1.2221. Formation of a cyclic dioxaphospholane structure requires more vigorous reaction conditions.

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USSR

UDC: None

IVANOVSKI, G. Y. and KAGANOV, M. I.

"Selective Transparence of Metallic Plates Caused by the Interaction of Electromagnetic and Sound Waves"

Leningrad, Fizika Tverdogo Tela, No 11, 1973, pp 3304-3311

Abstract: This theoretical paper computes the transmission coefficient of an electromagnetic wave through a metallic plate of given thickness, with the excitation of sound waves resulting from the incidence of the electromagnetic wave on the plate taken into account. While the resonance excitation of standing sound waves by an electromagnetic wave has been theoretically investigated (V. F. Kravchenko, ZhETF, 54, 1968, p 1494) for the case of a strong, constant magnetic field, where the basic transformation mechanism is inductive, the authors of the present paper consider the magnetic field to be absent, when the basic transformation mechanism is deformational. The case of mirror reflection of the electrons is considered under the assumption that the thickness of the plate is much greater than the mean free path of the electrons. The analysis begins with the system of equations describing the propagation

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USSR

UDC: None

IVANOVSKI, G. Y., et al, Fizika Tverdogo Tela, No 11, 1973, pp  
3304-3311

of the electromagnetic and sound waves, consisting of the kinetic equation for the electron distribution function, the Maxwell equations, and the equation for oscillations of an elastic medium.

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USSR

UDC 621.039.51.001.8

ARNOL'DOV, M. N., BOGATYREV, V. K., DUBOVSKIY, B. G., IVANOVSKIY, M. N.,  
KALENICH, V. N., KIR'YANOV, G. I., MILOVIDOVA, A. V., FROLOV, V. V.

"Activation Control of Oxygen in Circulating Sodium-Potassium Coolant Using  
a Neutron Generator"

Tr. VNII radiats. tekhn. (Works of the All-Union Scientific Research Institute  
of Radiation Engineering), 1972, No. 7, pp 137-144 (from RZh-50. Yadernyye  
reaktory, No 11, Nov 72, Abstract No 11.50.93)

Translation: The first stage in carrying out continuous control of oxygen in a  
circulating loop with an Na-K alloy and a mockup of a nuclear reactor circuit  
is described. The basis of the method is the familiar reaction for deter-  
mining oxygen on the basis of  $N^{16}$  (the reaction  $O^{16} (n, p) N^{16}$ ). A small-  
scale neutron generator of the type NGI-5 with a flux of about  $5 \cdot 10^8$  neutron/  
sec was used for activation. This method for oxygen control on the basis of  
the  $N^{16}$  isotope is also applicable in the active loop of a nuclear reactor.  
4 ill., 2 tables, 2 ref.

1/1



IVANOV-MUROMSKIY, K.A.

Brain Regulation

1. NAME (Last, First, Middle)		2. DATE OF BIRTH	
IVANOV-MUROMSKIY, K.A.		JUL 50021	
3. SELF REGULATION OF THE BRAIN			
4. ADDRESS (Including Organization Name and Address)			
Joint Publications Research Service 1000 North Glebe Road Arlington, Virginia 22201			
5. Sponsoring Organization Name and Address			
As above			
6. Supplementary Notes			
SNIROKULYATSIYA GOLYVNOGO MOZGA, 1971, Kiev			
7. Abstract			
The report contains an analysis of the interaction of different structures of the brain under the influence on it of different narcotic agents, proceeding from the principles of self regulation of the functional state of the cortex with the help of the subcortical systems, especially the non-specific systems			
8. Key words and literature Analysis 1/a. Description			
USSR Biological and medical sciences Pharmacology Narcotic agents			
9. Literature Open-Ended Terms			
10. (Usual Field/Group) 060			
11. Availability Statement			
Unlimited Availability			
Sold by NTIS Springfield, Virginia 22151			
12. Periodic Class (1-4)		13. Date of Review	
14. Periodic Class (1-4)		15. Date of Review	
16. Periodic Class (1-4)		17. Date of Review	
18. Periodic Class (1-4)		19. Date of Review	
20. Periodic Class (1-4)		21. Date of Review	
22. Periodic Class (1-4)		23. Date of Review	
THIS FORM MAY BE REPRODUCED			
VERSION OF 1977			

USSR

UDC: 621.315.592

GEORGITSE, Ye. I., IVANOV-OMSKIY, V. I., KOLOMIYETS, B. T.,  
MAL'KOVA, A. A., and SMEKALOVA, K. P., A. F. Ioffe Physico-  
Technical Institute, Leningrad

"Interaction of Hot Electrons and Phonons in  $\text{Cd}_x\text{Hg}_{1-x}\text{Te}$ "

Leningrad, Fizika i tekhnika poluprovodnikov, No 7, 1972, pp  
1283-1287

Abstract: Experiments are described for investigating the photoconductivity and photomagnetic effect in several  $\text{Cd}_x\text{Hg}_{1-x}\text{Te}$  alloys for the purpose of studying the peculiarities of heating electrons by light as well as the interactions of phonons and photoelectrons. The specimens, in which  $0.15 \leq x \leq 0.24$ , were n-type and were investigated at temperatures of 10 and 80° K in magnetic fields of up to 18 kOe. To avoid heating of the electron gas by the stationary field, the photoconductivity was measured in electric fields of no more than 0.1 V/cm intensity; all measurements were made under conditions of weak light signals  $\Delta n \leq n_0$ , where  $n_0$  is the concentration of balanced electrons. Spectra for the photoconductivity and the photomagnetic effect are plotted and a table of parameters for various combinations of the  $\text{Cd}_x\text{Hg}_{1-x}\text{Te}$  formula is presented.

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USSR

GEORGITSE, Ye. I., et al, Fizika i tekhnika poluprovodnikov, No 7, 1972, pp 1283-1287

The method by which the measurements were conducted is explained in an earlier article (Ye. I. Georgitse, et al, FTP, 5, 1971, p 1765). The assistance of I. P. Polushchuk, graduate of Tbilisi University, is acknowledged.

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USSR

UDC 542.91 + 661.718.1

ARBUZOV, B. A., RIZPOLCZHENSKIY, N. I., VIZEL', A. O., IVANOVSKAYA, K. M., MUKHAMETOV, F. S., and GOL'DFARB, E. I., Institute of Organic and Physical Chemistry imeni A. Ye., Arbuzov, Acad. Sc. USSR

"Synthetic Routes of 1,2-Oxaphospholene Derivatives in the Reaction of  $\beta$ -Ketoalcohols With Acid Chlorides of Trivalent Phosphorus Acids"

Moscow, Izvestiya Akademii Nauk, SSSR, Seriya Khimicheskaya, No 1, Jan 71, pp 117-125

Abstract: In studying the reaction of  $\beta$ -ketoalcohols with acid chlorides of trivalent phosphorus acid, a series of 1,2-oxaphospholene derivatives was obtained. The reaction took place in several definitely marked stages. For example, dropwise addition of phenyldichlorophosphine to cooled diacetone alcohol resulted in an initial exothermic reaction producing a precipitate; the liquid portion becoming yellow, and an odor of mesitylene oxide becoming noticeable. The second half of the process occurred slowly, the precipitate disappeared, the reaction mixture becoming again almost colorless. When the volatile pro-

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USSR

ARBUZOV, B. A., et al., Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 1, Jan 71, pp 117-125

ducts were removed, the reaction mixture crystallized, and finally liquefied again on distillation. A five stage mechanism has been proposed for this reaction: the first stage consisting of an alcoholysis of acyl chloride leading to the formation of an acid which then reacts with more starting material to produce a new acyl chloride, a very reactive compound which adds rapidly to the unsaturated ketone formed in the first stage to yield a ketochloride  $RP(:O)Cl-CR_2CH_2COCH_3$  which isomerizes to 1,2-oxaphospholane. In the final step a molecule of HCl are not conjugated yielding 1,2-oxaphospholene.

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USSR

BURKOV, V. N., IVANOVSKIY, A. G., GORGIDZE, I. A.

"Some Problems of Control of Active Systems"

Aktual'n. Vopr. Tekhn. Kibernetiki [Pressing Problems of Engineering Cybernetics -- Collection of Works], Moscow, Nauka Press, 1972, pp173-175 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V592, by the authors).

Translation: The application of the principles of "open control" to the solution of problems in control of active systems is studied.  $n$  active elements are given, the capabilities of which are defined by plans with priorities  $S_{ij}$  ( $i = 1, 2, \dots, n, j = 1, 2, \dots, m$ ). Conditions of full agreement of the active system (agreement factor equal to unity) are defined. For the case  $C_{ij} = C_j$ , the possibility is proven of full agreement, and an algorithm for solution of the problem is presented.

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USSR

BURKOV, V. N., IVANOVSKIY, A. G., GORGIDZE, I. A.

"Optimization of Models of Economics Based on the Principle of Open Control"

Vopr. Ekon.-mat. Modelir. [Problems of Economic and Mathematical Modeling -- Collection of Works], Moscow University Press, Moscow, 1971, pp 5-16, (Translated from Referativnyy Zhurnal, Kibernetika, No 2, 1972, Abstract No 2 V616).

NO ABSTRACT.

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USSR

UDC 533.601.18

IVANOVSKIY, A. I. and ROZENFEL'D, S. Kh.

"Solving Intrinsic Problems of Aerodynamics in a Transient Regime by Means of a Model Kinetic Equation"

Novosibirsk, Zhurnal Prikladnoy Mekhaniki i Tekhnicheskoy Fiziki, No 2,  
March-April 1972, pp 23-28

Abstract: A method is developed, which is based upon the use of a model kinetic equation with the collision frequency  $\omega = v/l$  ( $l$  is the mean free path,  $v$  is the modulus of molecular velocity). The method is tested on several classical problems. It is shown that the proposed method provides the correct limit transition both to free-molecular flows and to continuous flows. At the same time, without imposing any limitations upon the geometry of the region and the dimensionality of the problem, it permits flows with arbitrary Knudsen numbers to be described by very economical means. 4 figures. 4 references.

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USSR

UDC 539.3

BOBROV, E. SH., ~~IVANOVSKIY, I. A.~~

"On One Formulation of Physical Relationships in the Theory of the Bending of Plates of E. Reissner"

Sb. tr. Mosk. inzh.-stroit. in-t (Collection of Works of Moscow Structural Engineering Institute), 1970, No. 84, pp 131-134 (from RZh-Mekhanika, No 9, Sep 71, Abstract No 9V177)

Translation: The possibility of reducing the problem on the bending of plates within the framework of the theory of E. Reissner (see Reissner, E., J. Appl. Mech., 1945, Vol. 12, A69-A77) to a boundary value problem for two equations of the fourth and second order for an arbitrary transverse load  $q$  is realized. The following expressions for transverse forces were obtained in terms of the bending of the middle surface  $w$  and the stress function  $\psi$  ( $D$  is the cylindrical rigidity,  $\nu$  is the Poisson coefficient,  $h$  is the thickness,  $x, y$  are the orthogonal coordinates in the middle plane, and  $\Delta$  is the Laplace operator)

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USSR

UDC 621.357.13:669.292

IVANOVSKIY, L. YE. and KOMELEVSKIY, V. A.

"Electrolytic Refining and Preparation of a Continuous Cathode Precipitation of Vanadium in Bromide Melts"

Tr. In-ta elektrokhimii. Ural'sk nauch. tsentr. AN SSR (Studies of the Institute of Electrochemistry. Ural Science Center, Academy of Sciences USSR)  
Vyp 18, 1972, pp 82-86 (from Referativnyy Zhurnal -- Khimiya, No 7, 1973, Abstract No 7L428 by A. D. Davydov)

Translation: The electrolytic refining and precipitation of V during the electrolysis of bromide melts at 400-700°C was studied. For this an eutectic mixture of LiBr and KBr containing 6 to 8 wt %  $\text{KBr}_2$  was used. It was shown that at 500°C and lower, V may be deposited on the cathode in a purity higher than 99.9% for a  $D_k$  equal to 0.01 a/cm<sup>2</sup>. At 400°C V may be obtained as a coherent deposit several mm thick without noticeable further growth in the film. Increasing the temperature and  $D_k$  results in an increase in the growth of dendrites.

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USSR

UDC 621.357.13

IVANOVSKIY, L. Ye., KOTELEVSKAYA, V. A., RASKIN, B. Ya.

"Production of Continuous Coatings of Vanadium by Electrolysis of Halide Melts"

Tr. In-ta Elektrokhimii. Ural'sk. Nauch. Tsentr AN SSSR [Works of Institute of Electrochemistry, Ural's Scientific Center, Acad. Sci. USSR], No 17, 1971, pp 124-126 (Translated from Referativnyy Zhurnal, Khimiya, No 3, 1972, Abstract No 3 L355 by A. V. Dribinskiy).

Translation: The precipitation of V during electrolysis of chloride and bromide-chloride melts is studied. It is shown that continuous cathode sediments several millimeters thick can be produced with  $D_c = 10-20 \text{ ma/cm}^2$  at  $400-450^\circ$ . Increasing the temperature in  $D_c$  causes formation of a dendritic sediment.

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USSR

UDC 621.357.13.035.2

KRASIL'NIKOV, M. T., IVANOVSKIY, L. Ye.

"Electrode Processes During Electrolysis of Anodes of NbO in a Chloride-Fluoride Melt"

Tr. In-ta Elektrokhimii. Ural'sk. Nauch. Tsentr. AN SSSR [Works of Institute of Electrochemistry, Ural's Scientific Center, Acad. Sci. USSR], No 17, 1971, pp 94-97 (Translated from Referativnyy Zhurnal, Khimiya, No 3, 1972, Abstract No 3 L359 by K. S. Pedan).

Translation: The process of anodic dissolution of  $\text{NbO}_2$  in a melt of KCl NaCl-10 wt.% NaF was studied at  $700^\circ$  with  $D_a = 0.01-0.5 \text{ a/cm}^2$ . It was established that  $\text{NbO}^{n+}$  is transferred to the electrolyte, where  $n = 2-3$ , which then discharges on the cathode at a potential more positive than metallic Nb in chloride-fluoride baths. The anodic polarization of NbO at  $700^\circ$  in the  $D_a$  interval  $10^{-3}-4 \text{ a/cm}^2$  was measured in a chloride-fluoride melt at the moment of deflection of the polarizing current. The cathodic polarization of the Mo electrode was determined in an electrolyte of KCl-NaCl-10 wt.% NaF, containing the products of anodic dissolution of NbO.

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USSR

UDC 621.357.13.035.4

KRASIL'NIKOV, M. T., IVANOVSKIY, L. Ye.

"Electrolysis of Niobium Dioxide Anodes in a Chloride-Fluoride Melt"

Tr. In-ta Elektrokhimii. Ural'sk. Nauch. Tsentr. AN SSSR [Works of Institute of Electrochemistry, Ural's Scientific Center, Acad. Sci. USSR], No 17, 1971, pp 98-103 (Translated from Referativnyy Zhurnal, Khimiya, No 3, 1972, Abstract No 3 L360 from the Resume).

Translation: The anodic dissolution of  $\text{NbO}_2$  in a  $\text{KCl-NaCl-10 wt.}\%$  NaF melt is studied at  $700^\circ$ ,  $D_a$  0.01-0.5  $\text{a/cm}^2$ . It is demonstrated that  $\text{NbO}^{n+}$  ions go over into the melt, where  $n = 2-3$ , then discharge at a potential more electropositive than metallic Nb in these melts. Oxygen accumulates on the anode as  $\text{Nb}_2\text{O}_5$ . The anodic polarization of electrodes of  $\text{NbO}_2$  is measured at  $700^\circ$  in the same melts in the  $D_a$  interval  $10^{-3}$ - $6 \cdot 10^{-1}$   $\text{a/cm}^2$ . The polarization of a molybdenum cathode in an electrolyte of  $\text{KCl-NaCl-10 wt.}\%$  NaF containing the products of anodic dissolution of  $\text{NbO}_2$  is measured.

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USSR

UDC: 533.9...16

IVANOVSKIY, M. A., POPOV, S. N., POPRYADUKHIN, A. P.

"The TOR-2 Stellarator"

Tr. Fiz. in-ta AN SSSR (Works of the Physics Institute, Academy of Sciences of the USSR), 1973, 65, pp 65-72 (from RZh-Fizika, No 6, Jun 73, abstract No 6G355)

Translation: The difference between the Tor-2 stellarator and others is that the magnetic field is set up by discrete elliptical coils rather than by helical windings. The paper gives the theoretical assumptions which act as the basis for the design of the installation, and also the results of initial studies. Bibliography of 12 titles.

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USSR

UDC: 533.9...16

ANDRYUKHINA, E. D., IVANOVSKIY, M. A., POPOV, S. N., POPRYADUKHIN, A. P.,  
FEDYANIN, O. I., KHOL'NOV, Yu. V.

"Investigation of the Magnetic Field Structure of the Tor-1 and Tor-2  
Stellarators"

Tr. Fiz. in-ta AN SSSR (Works of the Physics Institute, Academy of Sciences of  
the USSR), 1973, 65, pp 73-81 (from RZh-Fizika, No 6, Jun 73, abstract No  
6G358)

Translation: The electron beam method is used to study the structure of  
magnetic surfaces in toroidal plasma traps with a double-helix field -- the  
Tor-1 and Tor-2 stellarators. Beam monitoring was done by the conventional  
probe method and by a high-speed dielectric grid method. It is shown that the  
structure of the surfaces is regular up to angles of rotational conversion  $i$   
of the order of  $5.5\pi$  throughout the entire range of variation in  $i$  with the  
exception of the resonance values  $i = \pi, 2\pi, 4\pi$ , for which expansion of  
the surfaces with the formation of a rosette structure is recorded. The  
amplitude of resonance perturbations measured with respect to the width of the  
rosettes is of the order of  $10^{-4}$  of the amplitude of the main stellarator field.  
Bibl. 11 titles.

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USSR

UDC: 8.74

IVANOVSKIY, R. I., MIKHAYLOV, V. G., PODKORYTOV, V. N.

"Investigation of the Stability of Multidimensional Automatic Control Systems by Means of Symbolic Transformations on a Digital Computer"

Irkutsk, Issledovaniye ustoychivosti mnogomernykh sistem avtomaticheskogo upravleniya s pomoshch'yu simvolicheskogo preobrazovaniya na TsVM. Tr. po prikl. mat. i kibernet. Sib. energ. in-t Sib. otd. AN SSSR (cf. English above. Works on Applied Mathematics and Cybernetics. Siberian Power Engineering Institute, Siberian Department of the Academy of Sciences of the USSR), 1972, 79-86, bibliogr. of 7 titles (manuscript deposited in VINITI 26 Dec 72, No 5285-72 Dep.) (from RZh-Kibernetika, No 7, Jul 73, abstract No 7V713 Dep. by the authors)

Translation: The paper describes a program for getting the characteristic polynomial of a multidimensional automatic control system with coefficients which are analytical expressions of the parameters of the investigated system.

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USSR

UDC 621.039.534:539.219.1(088.8)

ARNOL'DOV, M. N., IVANOVSKIY, M. N., PLESHIVTSEV, A. D.

"Method for Determining Admixtures in Liquid Metal"

Sposob opredeleniya primesey v zhidkom metalle (cf. English above), Authors  
Certificate USSR, Class G 01 n 33/20, No. 335607, Announced 12 Oct 70,  
Published 12 May 72 (from RZh-50. Yadernyye reaktory, No 11, Nov 72,  
Abstract No 11.50.135 P)

Translation: The invention concerns methods for controlling the content of admixtures in liquid metals used as coolants in nuclear reactors. The method is distinguished by the fact that the coolant in the indicator is cooled monotonically by the cooler. When the coolant temperature becomes equal to the temperature of saturation by its admixture, the latter is crystallized into a residue which is caught in openings of the indicator. In the proposed method the rate of clogging of the indicator and the temperature of the beginning of clogging are measured. The rate of clogging depends on the form of the admixture going into precipitate, other conditions being equal.

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Nuclear Science and Technology

USSR

UDC 621.039.566:669.054(088.8)

ARNOL'DOV, M. N., IVANOVSKIY, M. N., FILIPPOV, I. T., and SHMATKO, B. A.,

"A Crystallizer-Accumulator"

USSR Authors Certificate No 275247, filed 13/11/68, published 22/10/70 (translated from Referativnyy Zhurnal-Yadernyye Reaktory, No 3, 1971, Abstract No 3.50.31 P)

Translation: A crystallizer-accumulator is patented for purification of liquid metal heat-transfer media of impurities and corrosion products in a system consisting of a cooled body and pipe lines for supply and drainage of the heat-transfer medium. In order to improve purification by creating agitation of the flow of the heat transfer-medium, the internal surface of the cooled body carries a number of parallel ribs made of a material with high heat conductivity, equipped with an aperture for passage of the heat-transfer medium.

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Nuclear Science and Technology

UDC 621.039.566:669.054(088.8)

USSR

ARNOL'DOV, M. N., IVANOVSKIY, M. N., FILIPPOV, I. T., and SHMATKO, B. A.,

"A Crystallizer-Accumulator"

USSR Authors Certificate No 275247, filed 13/11/68, published 22/10/70 (translated from Referativnyy Zhurnal-Yadernyye Reaktory, No 3, 1971, Abstract No 3.50.31 P)

Translation: A crystallizer-accumulator is patented for purification of liquid metal heat-transfer media of impurities and corrosion products in a system consisting of a cooled body and pipe lines for supply and drainage of the heat-transfer medium. In order to improve purification by creating agitation of the flow of the heat transfer-medium, the internal surface of the cooled body carries a number of parallel ribs made of a material with high heat conductivity, equipped with an aperture for passage of the heat-transfer medium.

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USSR

UDC 621.039.534.6

ARNOL'DOV, M. N., ~~IVANOVSKIY~~, M. N., MOROZOV, V. A., PLETENETS, S. S.,  
and SUBBOTIN, V. I.

"Solubility of Gases in Eutectic Sodium-Potassium Alloy"

Moscow, Atomnaya Energiya, Vol 28, No 1, Jan 70, pp 18-22

Abstract: The article describes results of the measurement of the solubility of gases in the eutectic sodium-potassium alloy at various temperatures. The apparatus used by the authors, in contrast to the device used by E. COMPERE and J. SAVOLAINEN, permits study of the equilibrium between gas and alloy in direct contact with each other. This made it possible to measure the solubility not only of hydrogen, but also of such gases as nitrogen, argon, and helium. In addition, information could be obtained on the kinetics of the interaction of the gases with the alloy. The hot volume method was used to study the solubility of the gases in the alloy.

The first series of experiments yielded the dependence of the hydrogen pressure on the amount of hydrogen absorbed by the alloy

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USSR

ARNOL'DOV, M. N., et al., Atomnaya Energiya, Vol 28, No 1, Jan 70, pp 18-22

at 380° C. The dependence of activity coefficient,  $\gamma$ , of hydrogen in the alloy on the hydrogen concentration was calculated. In the second series of experiments, undertaken following removal of hydrogen from the alloy by evacuation, the temperature dependence of the saturation concentration of hydrogen in the alloy was calculated, as well as the temperature dependence of the dissociation pressure of the saturated hydrogen solution.

Some results are described of the kinetic study of the interaction of gases with alloy. The process of hydrogen evolution, as well as the process of absorption, is described by a first-order reaction equation. The solubility of the inert gases was determined for the alloy at 300° C. The absorption rate of the inert gases is much slower than hydrogen absorption.

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1/2 043 UNCLASSIFIED PROCESSING DATE--09OCT70  
TITLE--SOLUBILITY OF GASES IN A SODIUM AND POTASSIUM EUTECTIC ALLOY -U-

AUTHOR--(05)-ARNOLDOV, M.N., IVANOVSKIY, M.N., MOROZOV, V.A., PLETENETS,  
S.S., SUBBOTIN, V.I.  
COUNTRY OF INFO--USSR

SOURCE--AT. ENERG. 1970, 28(1), 18-22

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--SODIUM ALLOY, POTASSIUM ALLOY, EUTECTIC, ALKALI METAL,  
HYDROGEN, ARGON, SOLUBILITY, GAS PROPERTY, LIQUID METAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY KEEL/FRAME--1995/1321

STEP NO--UR/0039/70/028/001/0018/0022

CIRC ACCESSION NO--AP0116781

UNCLASSIFIED

2/2 043

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0115781

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN APP. USED TO MEASURE THE SOLY. C OF GASES IN MOLTEN ALKALI METALS IS DESCRIBED. THE C OF H SUB2 IN A 78.2 WT.PERCENT K-21.8 WT.PERCENT NA ALLOY IS DESCRIBED BY THE EQUATION  $\log (C \text{ TIMES } 10 \text{ PRIME}^4) \text{ EQUALS } 6.43 \text{ MINUS } (2670-T)$ , WHERE C IS IN WT.PERCENT AND T IS THE TEMP., (DEGREESK); THIS EQUATION IS VALID FOR H SUB2 CONCN. BLOW THE SATN. POINT, I.E., WHEN THE RELATION BETWEEN THE H SUB2 CONCN. AND (P) PRIME<sup>0.5</sup> (WHERE P IS THE H SUB2 PRESSURE OVER THE ALLOY) IS LINEAR. AT 300DEGREES, LOG C FOR N SUB2, HE, AND AR IN THE ABOVE ALLOY (WHERE C IS ATOM FRACTION-KG-CM PRIME<sup>2</sup>) UNDER 1 ATM IS MINUS 4.3, MINUS 4.9, AND MINUS 5.1, RESP.

UNCLASSIFIED

1/2 042 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--HEAT AND MASS TRANSFER IN A HEAT PIPE WITH A SODIUM HEAT TRANSFER  
AGENT -U-  
AUTHOR-(04)-IVANOVSKIY, M.N., SOROKIN, V.P., SUBBOTIN, V.I., SHUSTOV, M.V.  
COUNTRY OF INFO--USSR  
SOURCE--TEPLOFIZ. VYS. TEMP. 1970, 8(2), 319-25  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS, MATERIALS  
TOPIC TAGS--HEAT TRANSFER, MASS TRANSFER, HEAT PIPE, SODIUM, STAINLESS  
STEEL  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3005/1407 STEP NO--UR/0294/70/008/002/0319/0325  
CIRC ACCESSION NO--AP0133359

UNCLASSIFIED



2/2 042

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0133359

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HEAT AND MASS TRANSFER STUDIES BASED ON CAPILLARY ACTION IN WICKS, APPLICABLE TO WEIGHTLESS CONDITIONS, WERE CONDUCTED AT HIGH TEMPS. IN HEAT TUBES (500 MM LONG, 25.5 MM INSIDE DIAM.) LINED WITH A NA WETTED AND SATD., WOVEN STAINLESS STEEL SCREEN 1.5 MM THICK WITH PERMEABILITIES OF 70-260 DARCIES AND EFFECTIVE PORE RADII OF 0.023-0.13 MM. THE VAPOR PRESSURE VARIATIONS AND PRESSURE DROPS ( $\Delta P$ ) ALONG THE LENGTH OF THE TUBE WERE DETD. AS A FUNCTION OF TEMP. (600-800DEGREES), HEAT TRANSFER RATE ( $q$ ) LESS THAN 3.7 KW, AND VAPORIZATION ZONE REYNOLDS NO. OF 1900-3700 AND 24-47 IN THE LONGITUDINAL AND RADIAL DIRECTIONS, RESP. THE WEDGE SHAPE PORE OPENINGS OF THE WICKS PERMITTED HEAT AND MASS TRANSFER DETNS. AT  $\Delta P$  GREATER THAN 0.07 BARS BETWEEN THE PHASES. FACILITY: FIZ.-ENERG. INST., MOSCOW, USSR.

UNCLASSIFIED

1/2 020 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--HYDROGEN IMPURITY IN A MOLTEN EUTECTIC ALLOY OF SODIUM AND  
POTASSIUM -U-  
AUTHOR--(04)-ARNOLD, M.N., IVANOVSKY, M.N., MOROZOV, V.A., PLETENETS,  
S.S.  
COUNTRY OF INFO--USSR  
SOURCE--TEPLOFIZIKA VYSOKIKH TEMPERATUR, JAN.-FEB. 1970, 1, (1), 88-92  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY, MATERIALS  
TOPIC TAGS--SODIUM ALLOY, POTASSIUM ALLOY, HYDROGEN, EUTECTIC MIXTURE,  
OXYGEN, CHEMICAL BONDING  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--2000/0203 STEP NO--UR/0294/70/008/001/0088/0092  
CIRC ACCESSION NO--AP0123972  
UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0123972

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. POSSIBLE FORMS IN WHICH H IMPURITY MAY OCCUR IN THE DISSOLVED STATE IN MOLTEN EUTECTIC NA, K ALLOYS ARE DISCUSSED THEORETICALLY AND COMPARED WITH EXPERIMENT. THE EQUILIBRIUM PRESSURE OF H OVER SUCH ALLOYS MAY BE MATERIALLY AFFECTED BY OTHER CHEMICALLY ACTIVE IMPURITIES SUCH AS O AND LI. IN ALL CASES OBSERVED EXPERIMENTALLY, HOWEVER, THE H APPEARED TO OCCUR IN SOLUTION MAINLY IN THE ATOMIC FORM, ALTHOUGH THERE WAS ALSO A TENDENCY FOR SOME OF THE H ATOMS TO BECOME ATTACHED TO O OR LI ATOMS.

UNCLASSIFIED

USSR

UDC 547.963.3

VARYUSHIN, B. F., DEDIYEVA, YE. P., MAZIN, A. L., LITINA, V. S., and IVANOV-SKII, K. K., Interfaculty Laboratory of Bioorganic Chemistry, Moscow State University imeni M. V. Lomonosov, Chair of Biochemistry Saratov Medical Institute

"Some Structural Characteristics of DNA in Pasteurella pestis Strain EV"

Moscow, Biologicheskiye Nauki, No 12, 1970, pp 82-86

Abstract: DNA isolated from P. pestis EV cells is hyperchromic after thermal denaturation (32 to 34%). The molecule is two-strand and contains guanine (24.3 mol.%), cytosine (24.3 mol.%), adenine (25.6 mol.%), 8-methyladenine (0.27 mol.%), thymidine (25.5 mol.%), and guanine+cytosine (48.6 mol.%). Some 56% of the nucleotide material is concentrated in the mono- and dipyrimidine sequences. P. pestis DNA also differs from some other bacterial DNA in having more dipyridine than monopyrimidine fragments, i. e., the Pur-Pyr-Pyr-Pur sequence is much less common than the Pur-Pyr-Pur sequence. This distribution explains why no bacterial DNA can form "molecular Hybrids" with DNA from animal cells. The nature of the distribution of pyrimidines in P. pestis DNA shows that bacterial DNA possesses some peculiarities of organization of nucleotide sequences that distinguishes it from the DNA of higher organisms.

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USSR

UDC 621.646-529(088.8)(47)

IVANOVSKIY, O. V., CHUGUNOV, YU. N.

"Hydraulic Panel with Programmed Control"

USSR Author's Certificate No 305460, filed 30 Jun 67, published 5 Jul 71 (from  
RZh--Avtomatika, Telemekhanika i vychislitel'naya tekhnika, No 4, Apr 72, Ab-  
stract No 4A600P)

Translation: A hydraulic panel is proposed which contains two plates. The control equipment is located on one of the plates, and the other plate has the input and output channels to the sensors and servomechanisms. In order to insure the possibility of fast program exchange, the panel has a commutation grid formed by columns (channels) of one plate and rows (channels) of the other plate. The columns are joined to the control equipment, and the rows are partly joined to the inputs and outputs of the hydraulic panel and partly form internal communications. At the intersections of the rows and columns of the grid on the plates there are holes which lead out to a fast-change rigid punch card pressed between the plates. The plates are connected to each other through the holes in the punch card in accordance with the operating cycle assigned by the punch card. There are 7 illustrations.

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USSR

BELOV, K. P., NIKITIN, S. A., TALALAYEVA, YE. V., CHERNIKOVA, L. A.,  
KUDRYAVTSEVA, T. V., TIKHONOV, V. V., and IVANOVSKIY, V. I., Moscow State  
University

"Determination of the Exchange Interaction of Ferrite-Gadolinium Garnet  
Sublattices Based on the Magnetocaloric Effect"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 61, No 3,  
Sep 71, pp 1101-1105

Abstract: Ferrite-rare earth garnets  $R_3Fe_5O_{12}$  have a trisublattice magnetic structure. In the majority of cases within the framework of molecular field theory it is possible to examine such ferrite-garnets as having a bisublattice structure. In this case both a and d iron sublattices are examined as a single  $Fe_{a-d}$ -sublattice, in the effective exchange field of which are found rare earth ions. The author determined the effective exchange field acting on the  $R^{3+}$  ions from the side of the  $Fe^{3+}$  ions. Based on the measurement data of the magnetocaloric effect, the susceptibility of the paraprocess, and the specific heat in the region of the temperature of compensation, the authors determined the exchange field in the garnet structure. The measurements showed that for the  $Gd_3Fe_5O_{12}$  garnet the field  
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BELOV, K. P., et al., Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki,  
Vol 61, No 3, Sep 71, pp 1101-1105

$H_{2eff} = 258$  kOe, and for  $Gd_{3.0}Ca_{0.3}Fe_{4.7}O_{12}$  the field  $H_{2eff} = 232$  kOe,  
which is 10% less than for the gadolinium garnet. The article contains  
1 illustration and 6 bibliographic entries.

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UDC 616.45-001.1/.3-07:616.831-008.9-097.5-078

IVANSHINA, A. Z., GASKIN, L. Z., and ORLOVSKAYA, D. D., Institute of Psychiatry, USSR Academy of Medical Sciences, Moscow

"Antibodies to the Brain in Stress"

Moscow, Zhurnal Nevropatologii i Psikhiatrii, No 7, 1973, pp 983-987

Abstract: Rats were stressed by keeping them isolated for 21 days and then placing them together with other animals (10 in a cage) for the same length of time. Change in the levels of blood 11-hydroxycorticosteroids (11-HCS) served as an indicator of stress. Antitissue antibodies were detected in serum using the complement-fixation reaction in the cold. Isolation markedly increased blood 11-HCS from the first day. The peak occurred on day 12 after which it returned to normal. Subsequent grouping of the animals resulted in a new increase in 11-HCS, with peaks on days 1 and 18. Antibodies to the liver were few in the isolation period, but they increased thereafter on days 12 and 21 relative to the control. Thus, under similar conditions stress stimulated the formation of antibodies to a barrier organ, the brain, sooner and in greater quantities than to a nonbarrier organ, the liver.

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MEYERSON, F. Z., ISABAYEVA, V. A., and ~~IVANSHINA, A. Z.~~ Institute of Normal and Pathological Physiology, Academy of Sciences, USSR

"Increasing the Development Rate and Degree of Retention of the Conditioned Reflexes of Animals Adapted to Altitude Hypoxia"

Moscow, Doklady Akademii Nauk SSSR, Vol 202, No 4, 1972, pp 982-984

Abstract: The aim of the project was to select the level of high-mountain hypoxia at which initial disturbances in conditioned-reflex activity in mice are minimal or are absent and positive shifts in cortical function during the process of gradual adaptation are expressed to a sufficient degree. The results obtained indicate that adaptation to the continuous action of moderate high-altitude hypoxia is accompanied by a considerable increase in the rate of development and degree of retention of conditioned reflexes by animals of different genetic lines. In an analysis of the mechanism of the phenomenon, two interrelated factors are to be noted. In the process of adaptation to high-altitude hypoxia, a pronounced activation of RNA and protein synthesis develops in the brain. This synthesis can probably result in a change of the stock of enzymes responsible for the synthesis and decomposition of acetylcholine, norepinephrine, serotonin, gamma-aminobutyric acid, and glutaminic acid.

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UDC 612.821.2

MEYERSON, F. Z., ISABAYEVA, V. A., IVANSHINA, A. Z., KRUGLIKOV, R. I., and GLUMOV, G. M., Institute of Normal and Pathological Physiology of the USSR Academy of Medical Sciences, Moscow, and Medical Institute of the Ministry of Health Kirgiz SSR

"Conditioned Reflexes in Massive and Expanded Training of Animals of Two Different Genetic Lines in the Process of Adaptation to Altitude Hypoxia"

Moscow, Zhurnal Vysshey Nervnoy Deyatel'nosti imeni I. P. Pavlov, Vol 21, No 2, 1971, pp 470-477

Abstract: Mice of two genetic lines, BALB/c (I) and C57BL6 (II), were used in experiments to determine the comparative rate of development and degree of preservation of conditioned avoidance and escape reflexes in the process of the animals' adaptation to altitude hypoxia. The methods of massive and expanded development of conditioned reflexes -- the first at 20 second and the latter at 90 second intervals between pairings were used. The control experiments were carried out in Moscow; the experiments themselves, -- 5, 10, 20, and 40 days after the transfer of the animals to the Tuya Ashu mountain pass at an altitude of 3,200 meters. The reflexes were developed by placing the mice into the

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main stem of a T-shaped labyrinth with passages permitting the animals to run to the illuminated sides of the T, and conducting an electric current to the floor of the area where the mice were initially placed. The degree of reflex preservation was determined by repeating the conditioning process to the initial criterion, and computing the preservation index on the basis of the difference in the number of pairings required to attain this criterion. The investigations established that under hypoxia the rate of the conditioning of both lines of animals by the massive method was substantially retarded in the beginning. In the course of adaptation to hypoxia, however, the rate of reflex development with the use of the massive method accelerated with the mice of line (1) attaining the initial level, and of line (2) considerably exceeding the level prior to that at the time of the arrival in the mountains. The expanded method when used for line (1) retarded and when used for line (2) had little effect on the conditioning rate. The degree of reflex preservation in both lines improved with the adaptation of the animals to hypoxia. It was further established that the mice of line (2) adapted to hypoxia conditions

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more successfully than did the mice of line (1). The latter, within 20 days after their transfer to the high altitude began to lose weight, their motor activity diminished and their fur began to lose its gloss. They developed a mortality rate of 38 percent as compared with that of five percent of the mice of line (2). The various aspects of the results obtained in the investigations are discussed. The assumption is that the indicated differences between the two genetic lines of mice reflect the difference in their neurodynamic and consolidation processes. Two tables and 28 reference entries accompany the article.

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UDC 612.275.1

MEYERSON, F. Z., ISABAYEVA, V. A., ~~EVANSHEVA, A. Z.~~, ERUGLINOV, R. I., and GLUMOV, G. M., Institute of Normal and Pathological Physiology, Academy of Sciences USSR, and Kirgiz State Medical Institute, Ministry of Health, Kirgiz SSR

"Formation and Retention of Conditioned Reflexes During Concentrated and Protracted Training of Animals of Two Different Genetic Lines in the Course of Adaptation to High-Altitude Hypoxia"

Frunze, Sovetskoye Zdravookhraneniye Kirgizii, No 4, Jul/Aug 70, pp 38-46

Abstract: Conditioned reflexes of avoidance and escape (from electric shocks) were developed in C57BL/6 mice in Moscow (controls) and in a mountain locality (3800 m above sea level). Reflexes were established 5, 10, 20, and 40 days after arrival by concentrated training (short intervals of time between presentation of stimuli) and protracted training (long intervals between stimulation). The C57BL/6 mice are known to adapt to hypoxia much better than the BALB/c mice. With concentrated training, the adapted C57BL/6 mice developed avoidance and escape reflexes three times more rapidly than before exposure to high altitude, whereas the rate of reflex formation in the BALB/c mice remained the same. With protracted training, the C57BL/6 mice developed the reflexes just as quickly as or even more quickly than before exposure to the high altitude. The situation

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was the opposite in Moscow. Here it took two to three times as long to form the reflexes in the BALB/c mice as in the C57BL/6 mice. The degree of retention of the reflexes increased with increasing adaptation to hypoxia in both genetic lines and with both methods of training.

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GOREACHEV, B. I.: IVANTISKIY, P. G.: KROTENKO, V. T.: PASECHNIK, M. V.  
(Institute of Nuclear Research of the Ukrainian Academy of Sciences, Kiev)

"Study of Inelastic Scattering of Slow Neutrons by Nickel Specimens of Differ-  
ing Isotopic Composition"

Kiev, Ukrainskiy Fizicheskii Zhurnal; April 1973, pp 558-63

Abstract: Inelastic scattering cross sections of slow neutrons by polycrystal-  
line specimens of nickel with a natural isotopic mixture, with an incoherent  
dispersive isotopic mixture and with the isotopic mixture enriched by the  
isotope  $\text{Ni}^{62}$  to  $\sim 95\%$ , were measured with high statistical accuracy. With  
respect to these scattering cross sections the frequency distribution func-  
tions  $g(\Delta E)$  of the normal oscillations of the atoms in a nickel lattice  
were derived.

The effect of coherence on the accuracy of the derivation of the function  
 $g(\Delta E)$  of the coherent diffusers in the incoherent approximation and the  
effect of the isotopic composition of the specimens on the function  $g(\Delta E)$   
were discussed.

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UDC 599.323.3:577.73:59.08

IVANTER, E. V., Petrozavodsk State University, Petrozavodsk

"A Method for Determining the Age of the Northern Birch Mice *Sicista betulina* (Rodentia, Dipodoidea)"

Moscow, Zoologicheskii Zhurnal, Vol 52, No 2, Feb 73, pp 255-257

Abstract: On decalcification of the bone with 6-7%  $\text{HNO}_3$  and staining with Ehrlich's haematoxylin, transverse sections of the lower jaw of *S. betulina* showed the presence of distinct layers in the periosteal bone zone. These layers, indicated by narrow dark bands (cementation lines), corresponded to the number of winterings by the animals and therefore to their age. *S. betulina* is the only representative of the superfamily Dipodoidea that penetrates into the taiga zone and the only rodent in the European North that hibernates. It is quite numerous in some regions. In view of the fact that *S. betulina* are infested with ixodid ticks in pre-imago stages and with other blood-sucking arthropods, study of these animals is of importance from the standpoint of the epizootiology of infectious diseases with natural foci.

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USSR

UDC 582.263:578.082

~~IVANTOV, YE. A.~~, and ALEKSANDROVA, I. V., Institute of Medical Biological Problems, Moscow

"Dynamic Properties of a Chlorella Culture as an Object of Automatic Control by Illumination Intensity"

Moscow, Zhurnal Obshchey Biologii, Vol 32, No 2, Mar/Apr 71, pp 208-216

Abstract: An experimental study was performed to determine the intensity of photosynthesis by Chlorella cultures illuminated with light of various intensities. The object of interest was the possible use of a biological system for the regeneration of air in a closed chamber. A quantitative correlation was found to exist between intensity of photosynthesis on the one hand and intensity of illumination, density of the Chlorella suspension, and the speed of its circulation in the experimental apparatus, on the other. After each abrupt change in illumination, most Chlorella cultures (97%) went through a transitory stage of about 3 minutes during which the rate of photosynthesis swung in the opposite direction before reaching a new steady state. For this reason, the Chlorella culture was defined as an inertial system with delayed responses. On the basis of the findings, a method of enhancing the automatic control of Chlorella photosynthesis by illumination intensity was suggested.

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UDC 537.312.62

IVANTSOV, A. V.

"Computation and Experimental Characteristics of a Duplexing Device in the Decimeter Range Using Lumped Elements"

Elektron. tekhnika. Nauch.-tekhn. sb. Kriogen. elektronika (Electronics Engineering, Scientific-Technical Collection, Cryogenic Electronics) No 1(3), 1971, pp 3-15 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10D493)

Translation: The need is established for dividing a duplexer into two parts for simultaneous operation of transmitter and receiver with a cryoelectronic UHF module at the input of one antenna: an uncooled part (for reducing the consumption of the cooling agent) and a cooled part (for protecting the parametric diode against the transmitter power). A method is given for computing the uncooled part of the duplexer with lumped reactive elements placed in one plane of the coaxial line. The electrical characteristics of the duplexer are given. Resume

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